Intervals, Transformations, and Slope Solution (version 47)

1. The function f is graphed below.
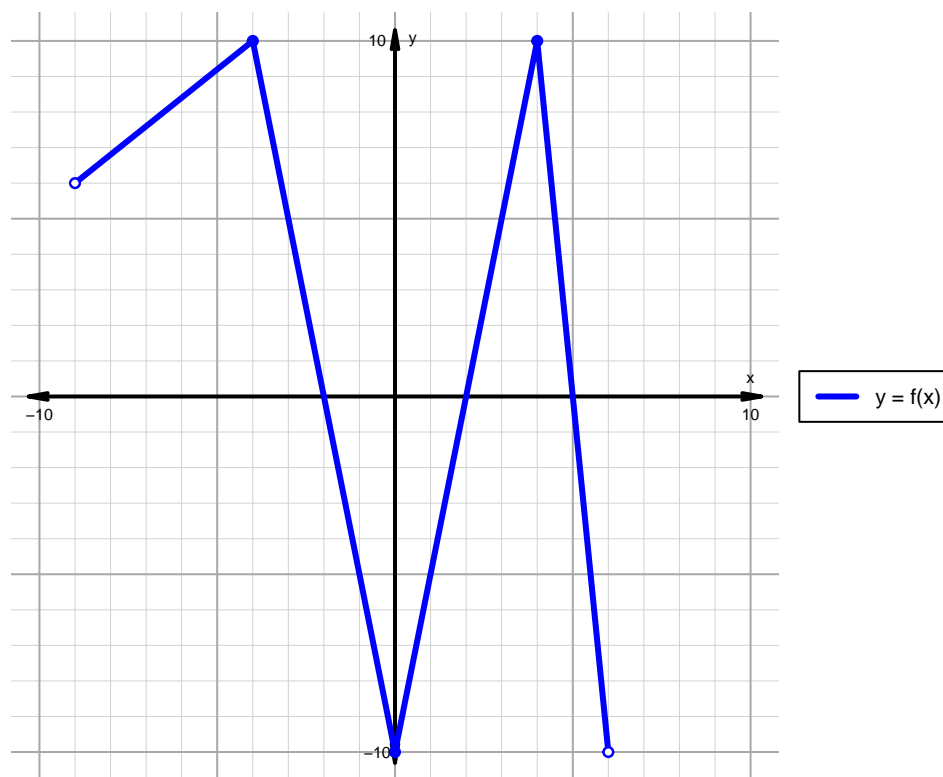
Indicate the following intervals using interval notation. Remember, you can use $\cup$ between two intervals to indicate the union. Except for range, all intervals will indicate x values; this is standard.

Feature	Where
Positive	$(-9, -2) \cup (2, 5)$
Negative	$(-2, 2) \cup (5, 6)$
Increasing	$(-9, -4) \cup (0, 4)$
Decreasing	$(-4, 0) \cup (4, 6)$
Domain	$(-9, 6)$
Range	$(-10, 10)$

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2. In the four graphs below, $y = f(x)$ is graphed as a dotted line. Please add the indicated transformed graphs indicated by the equations below using a solid line.

$y = f(2 \cdot x)$

$y = f(x) - 2$

$y = -2 \cdot f(x)$

$y = f(x - 2)$
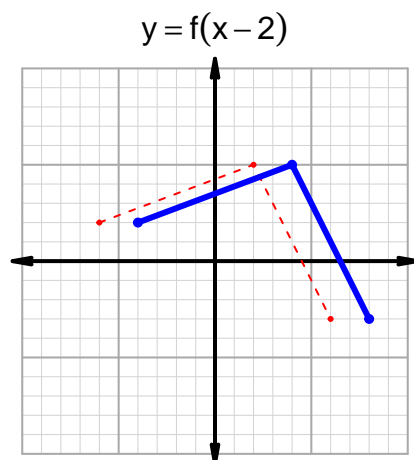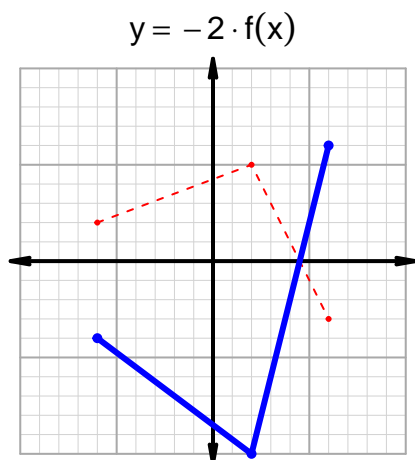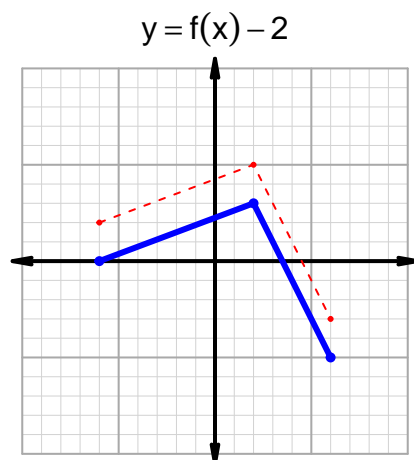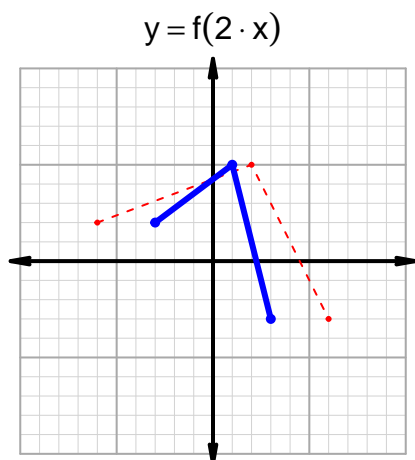
3. Let function g be defined by the table below. Use the formula $\frac{g(x_2) - g(x_1)}{x_2 - x_1}$ to find the average rate of change between $x_1 = 13$ and $x_2 = 27$. Express your answer as a reduced fraction.

x	$g(x)$
13	97
27	34
34	13
97	27

$\frac{f(27) - f(13)}{27 - 13} = \frac{34 - 97}{27 - 13} = \frac{-63}{14}$

The greatest common factor of -63 and 14 is 7. Divide numerator and denominator by the greatest common factor.

$$\text{AROC} = \frac{-9}{2}$$

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